

## HEARING AID INCORPORATING A NOVELTY FILTER

ABSTRACT OF THE DISCLOSURE

This invention discloses a hearing aid including one or more amplification channels in which each amplification channel includes a bandpass filter establishing the frequency range of that particular channel. Each amplification channel further includes a variable gain amplifier, a short-term energy averaging circuit, a long-term energy averaging circuit and a difference amplifier. An acoustical signal sensed by a microphone associated with the hearing aid is applied to the bandpass filter which then applies a signal within the particular frequency range of that filter to the variable gain amplifier and the short-term energy averaging circuit. An output from the variable gain amplifier is applied to the long-term energy averaging circuit and an earphone for enabling a hearing aid user to perceive the sounds sensed by the microphone. Steady state signals perceived by the microphone are integrated by the long-term energy averaging circuit which causes the difference amplifier to reduce the gain of the variable gain amplifier, thus decreasing the steady state sound. A novel sound sensed by the microphone is integrated by the short-term energy averaging circuit which causes the difference amplifier to increase the gain of the variable gain amplifier. In this manner, the gain of the amplifier is increased for desirable sounds and decreased for background noise.